

Abstract Submitted  
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**Probing quasi-2D condensates using *insitu* and focusing imaging methods** SHIHKUANG TUNG, JILA and University of Colorado, GIACOMO LAMPORESI, LENS, European Laboratory for Non-Linear Spectroscopy and Dipartimento di Fisica, Università di Firenze, DANIEL LOBSER, LIN XIA, ERIC CORNELL, JILA and University of Colorado — A 2D interacting Bose gas in an infinite uniform system doesn't undergo Bose-Einstein condensation due to long-wavelength thermal fluctuations. Instead, a Berezinskii-Kosterlitz-Thouless (BKT) transition is predicted. The system goes from superfluid state to normal state by dissociating vortex and anti-vortex pairs when approaching the transition temperature from below. However, in a finite inhomogeneous quasi-2D system, the process of the transition coming from normal state to BEC state is still not clear. We report our latest results on probing quasi-2D condensates using two different imaging techniques, *insitu* and focusing imaging. The *insitu* imaging and the focusing imaging methods probe the quasi-2D gas in coordinate space and in momentum space respectively. The two distributions provide different crucial information about the properties of an interacting quasi-2D Bose gas in an inhomogeneous trapped system.

Shihkuang Tung  
JILA and University of Colorado

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